

Fig. 1

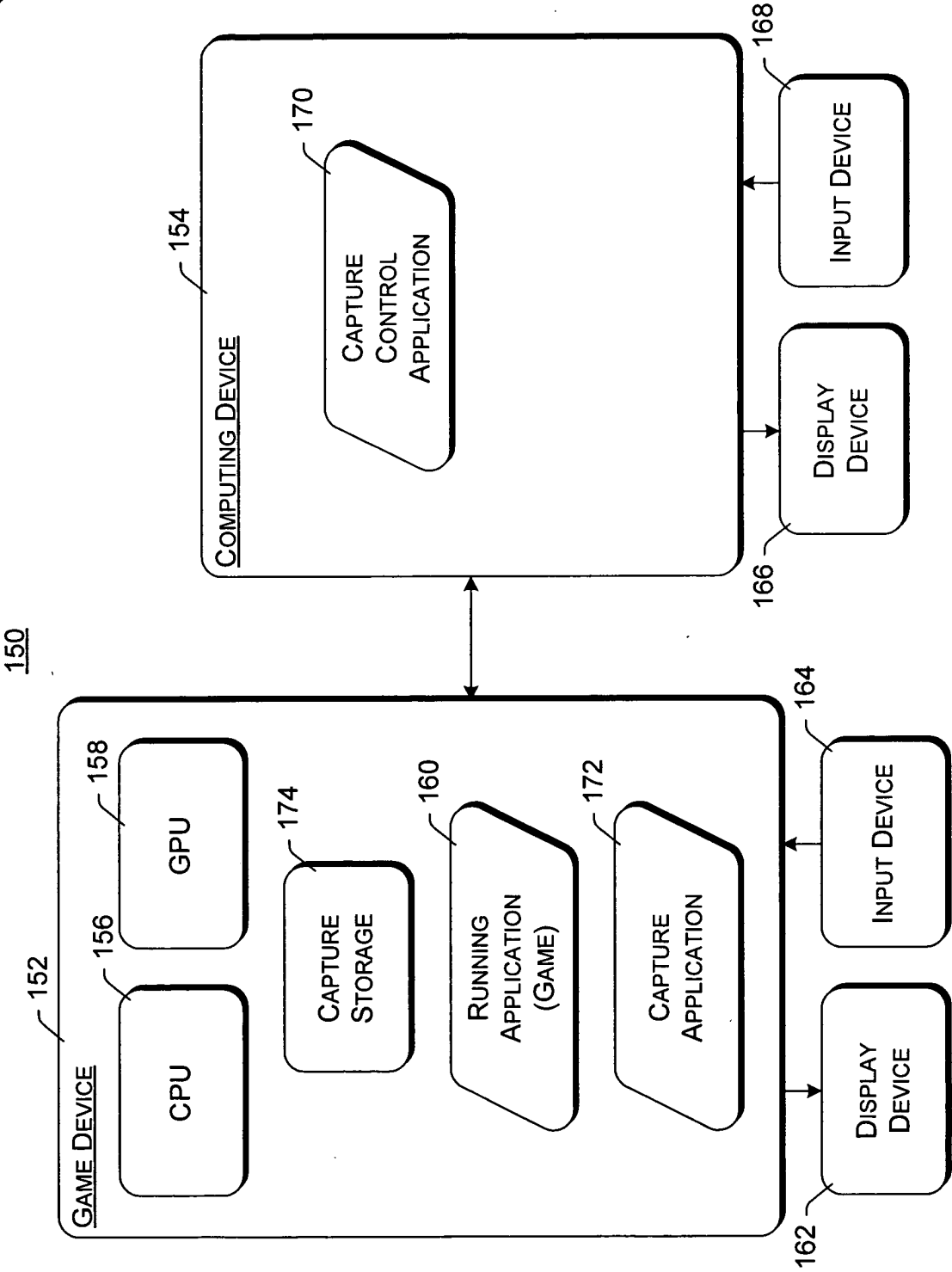


Fig. 2

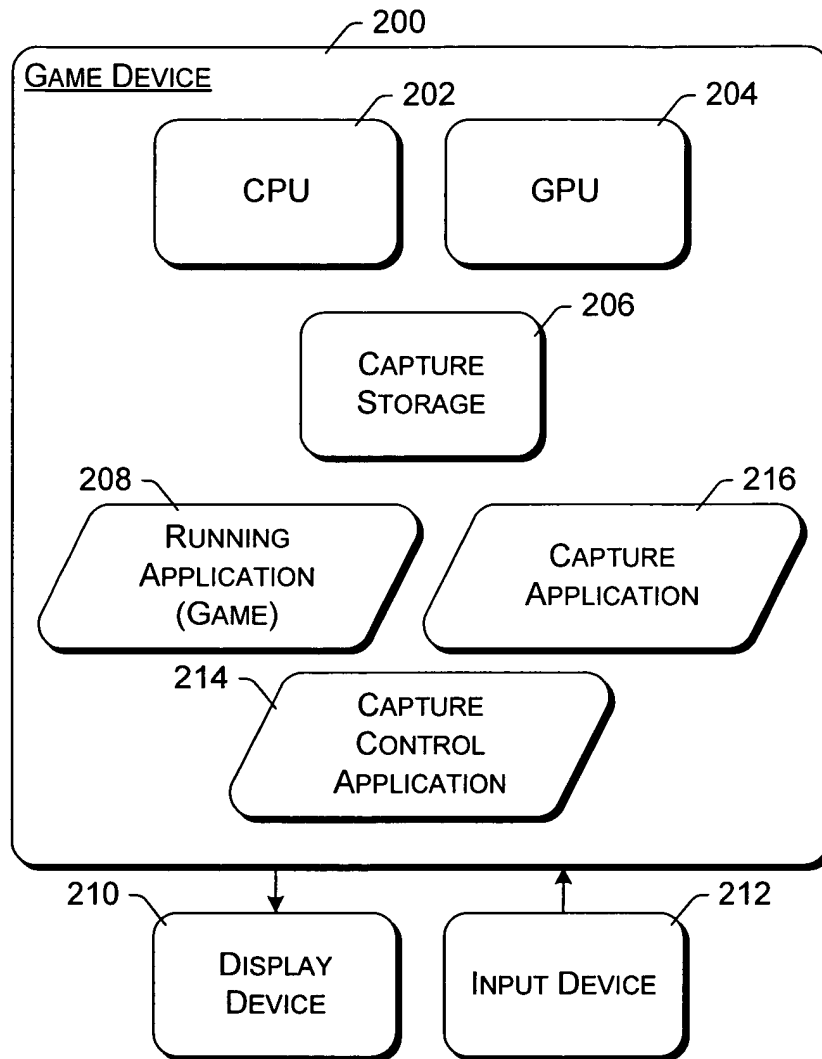
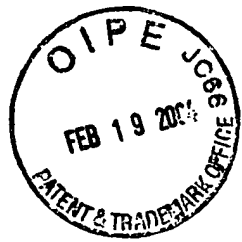


Fig. 3



240

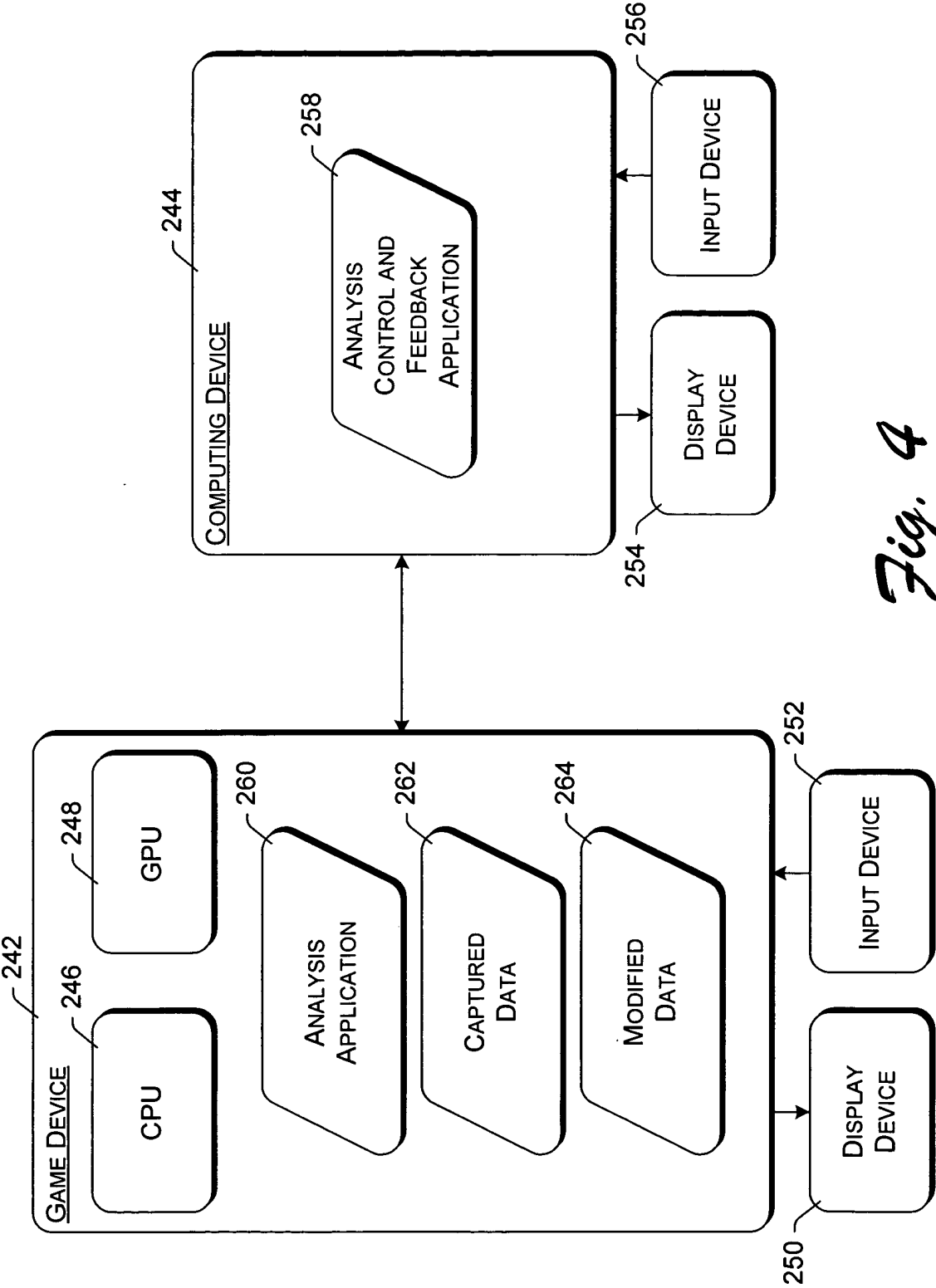


Fig. 4

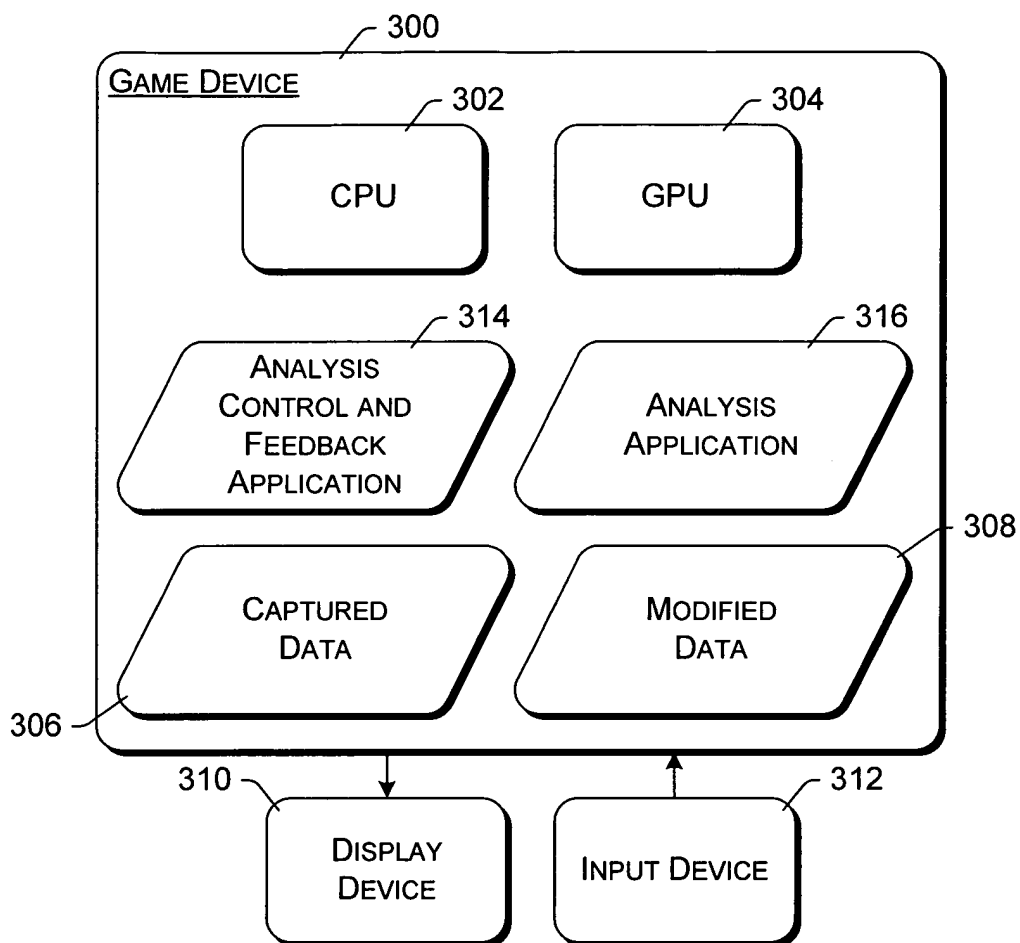


Fig. 5

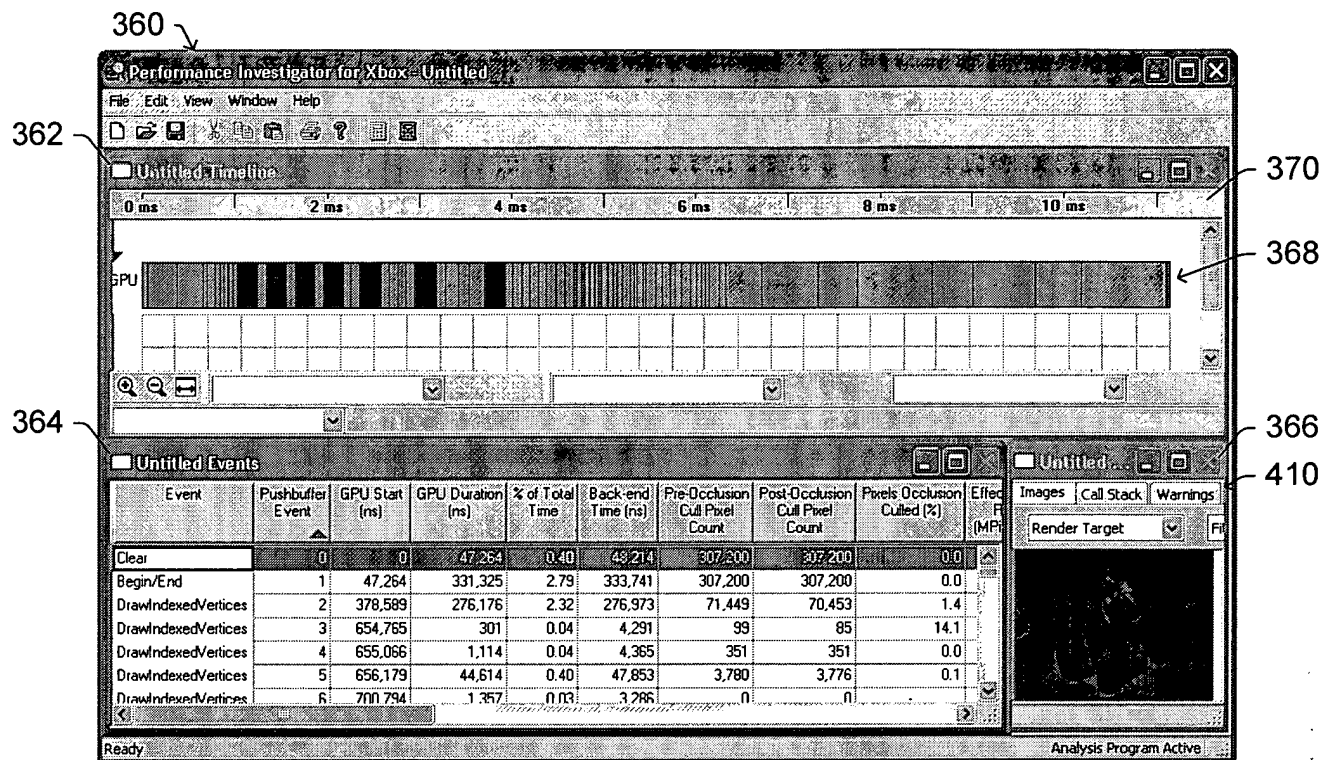


Fig. 7

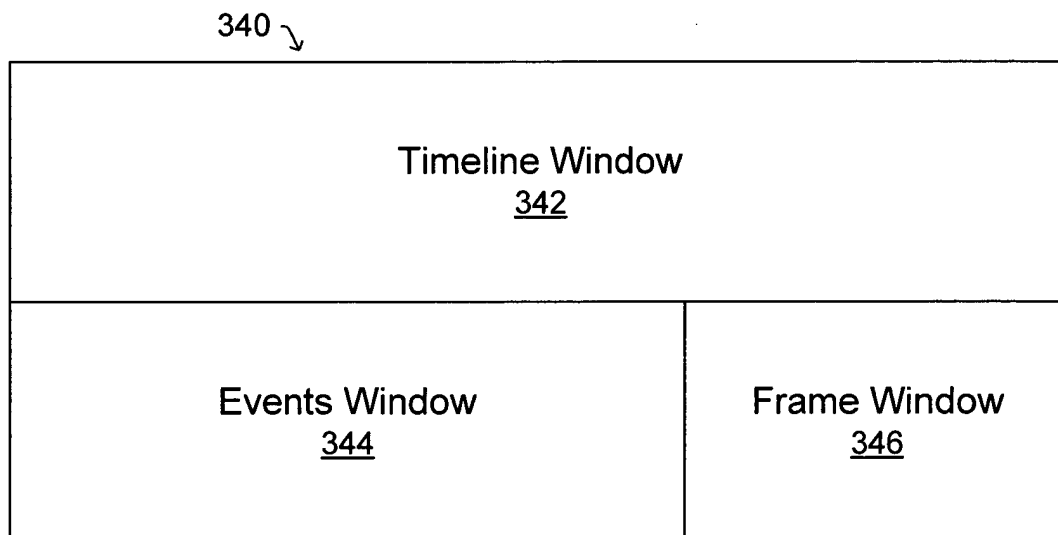


Fig. 6

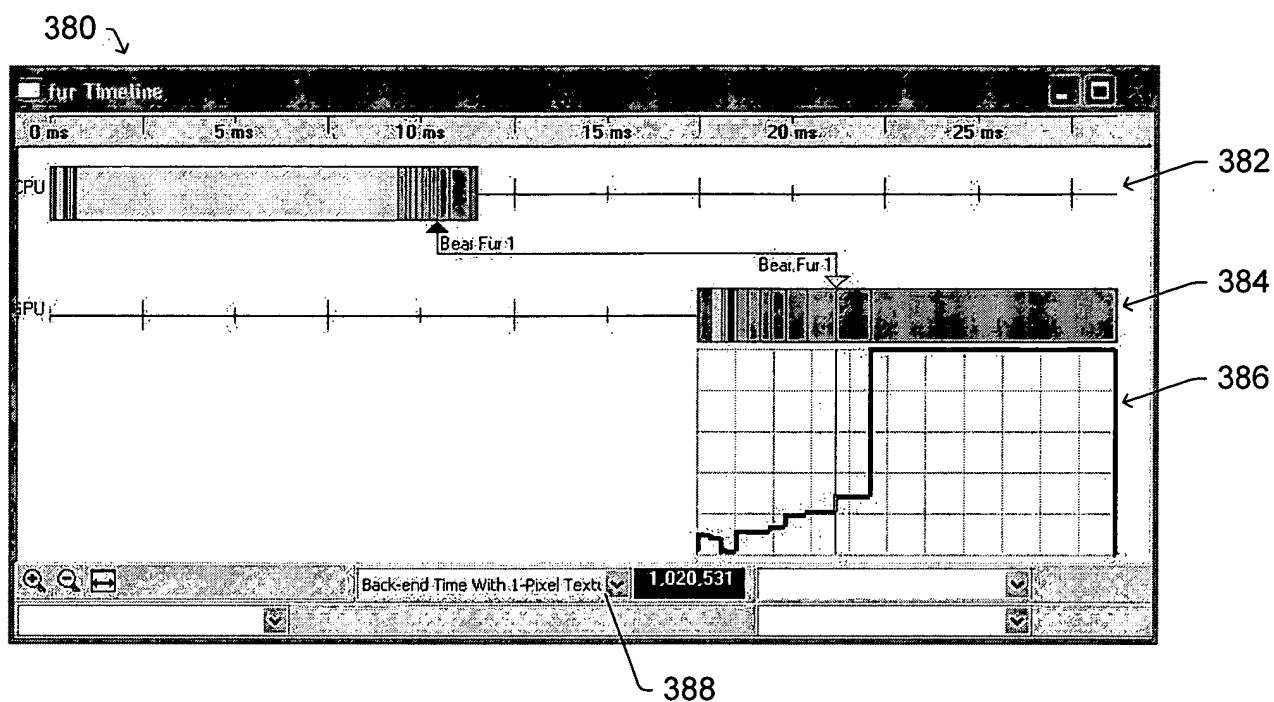


Fig. 8



400 ↘

fur Events								
Event	ID	CPU Start (ns)	CPU Duration (ns)	GPU Start (ns)	GPU Duration (ns)	% of Total Time	Back-end Time (ns)	Setup Time (ns)
---KickPushBuffer	0	0	14,449	-	-	-	-	-
[-]FrameMove	1	36,612	101,750	-	0	-	-	-
---Clear	3	144,537	4,698	15,745,863	48,640	-	-	-
---Begin/End	4	181,781	29,929	15,794,503	331,584	-	-	-
[-]Bear Mesh 0								
---DrawIndexedVertices	6	252,563	125,782	16,126,087	278,176	-	-	-
---KickPushBuffer	7	339,091	5,501	-	-	-	-	-
---KickPushBuffer	8	374,790	3,385	-	-	-	-	-
---DrawIndexedVertices	9	386,209	10,399	16,404,263	3,072	-	-	-
---DrawIndexedVertices	10	401,332	6,393	16,407,335	2,656	-	-	-
[-]Bear Mesh 1	11	409,555	56,960	16,409,991	45,568	-	-	-
[-]Bear Mesh 2	15	466,773	39,522	16,455,559	74,208	-	-	-
[-]Bear Mesh 3	19	506,536	91,996	16,529,767	59,072	-	-	-
[-]Bear Mesh 4	25	598,778	53,437	16,588,839	47,232	-	-	-
[-]Bear Mesh 5	29	652,769	39,348	16,636,071	47,552	-	-	-
[-]Bear Mesh 6	33	692,356	37,207	16,683,623	45,248	-	-	-
[-]Bear Mesh 7	37	729,799	92,051	16,728,871	50,783	-	-	-
[-]Bear Fur 7								
[-]DrawFins	44	852,610	122,595	16,779,656	156,932	-	-	-
[-]DrawShells	73	975,455	40,536	16,936,616	61,407	-	-	-
[-]Bear Fur 6	75	1,019,798	117,933	16,998,024	219,011	-	-	-
[-]Bear Fur 5	107	1,138,001	7,341,552	17,217,064	224,739	-	-	-
[-]Bear Fur 4	142	8,479,990	164,020	17,441,832	284,642	-	-	-

Fig. 9

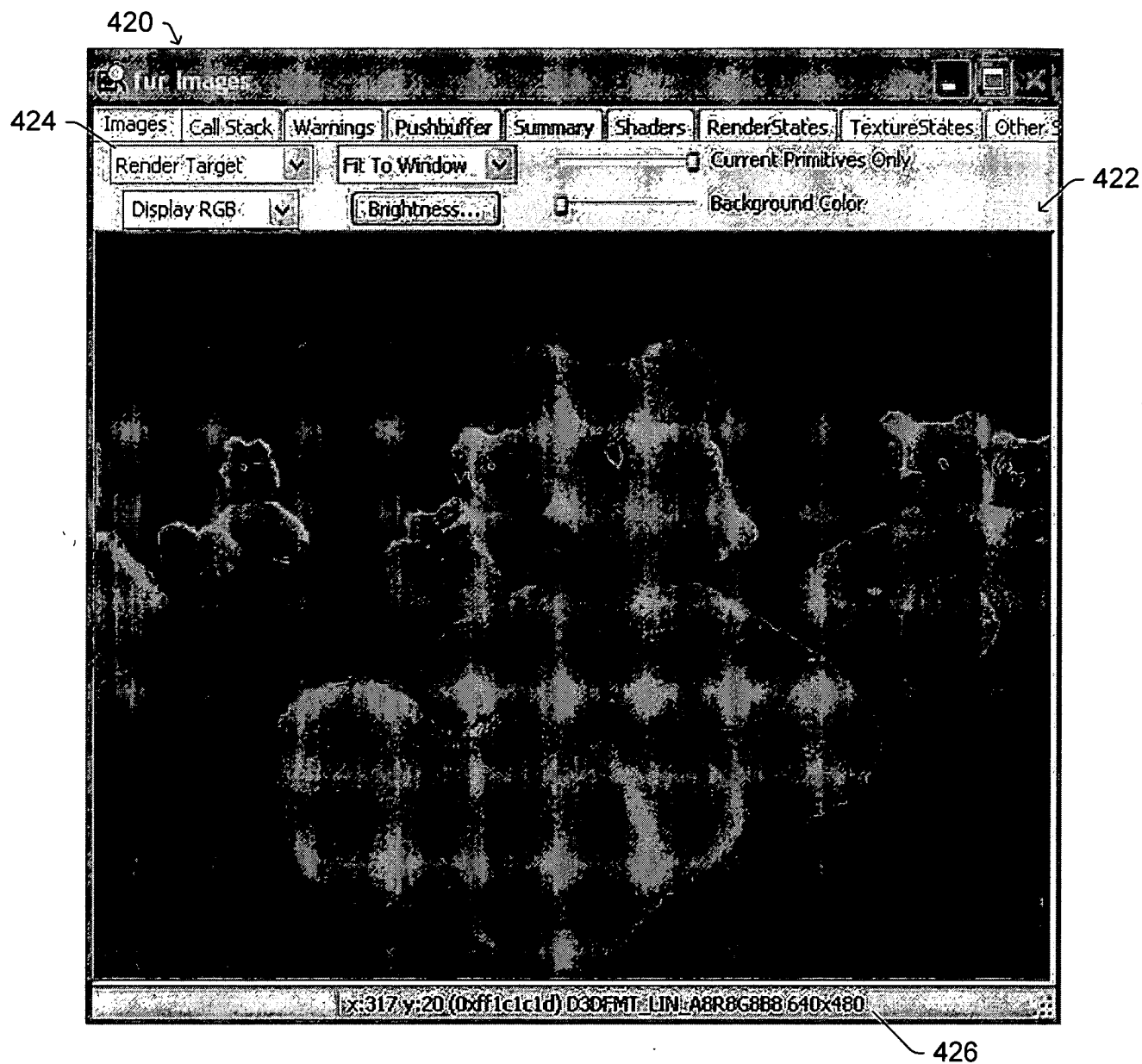


Fig. 10

BEST AVAILABLE COPY



420 ↘

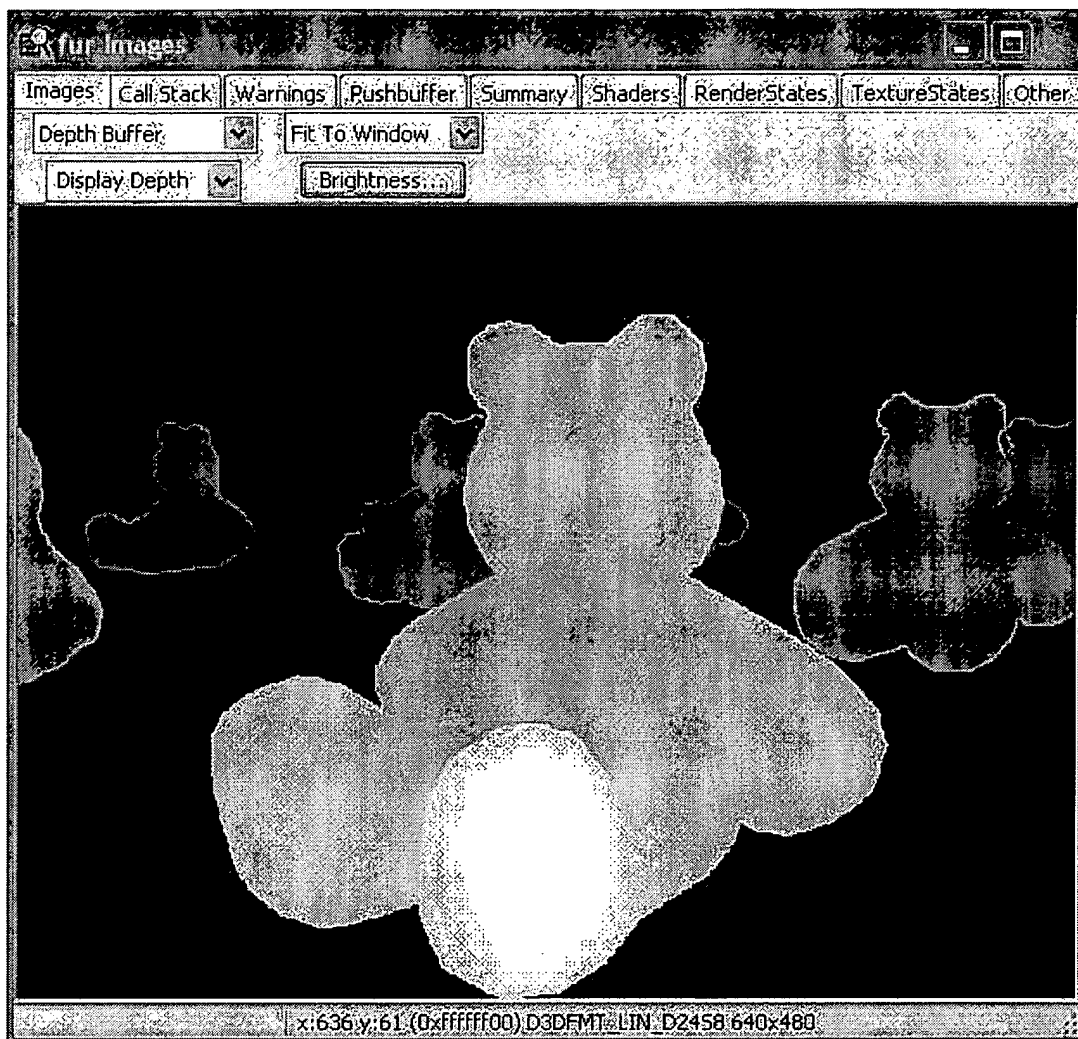


Fig. 11

BEST AVAILABLE COPY



420 ↘

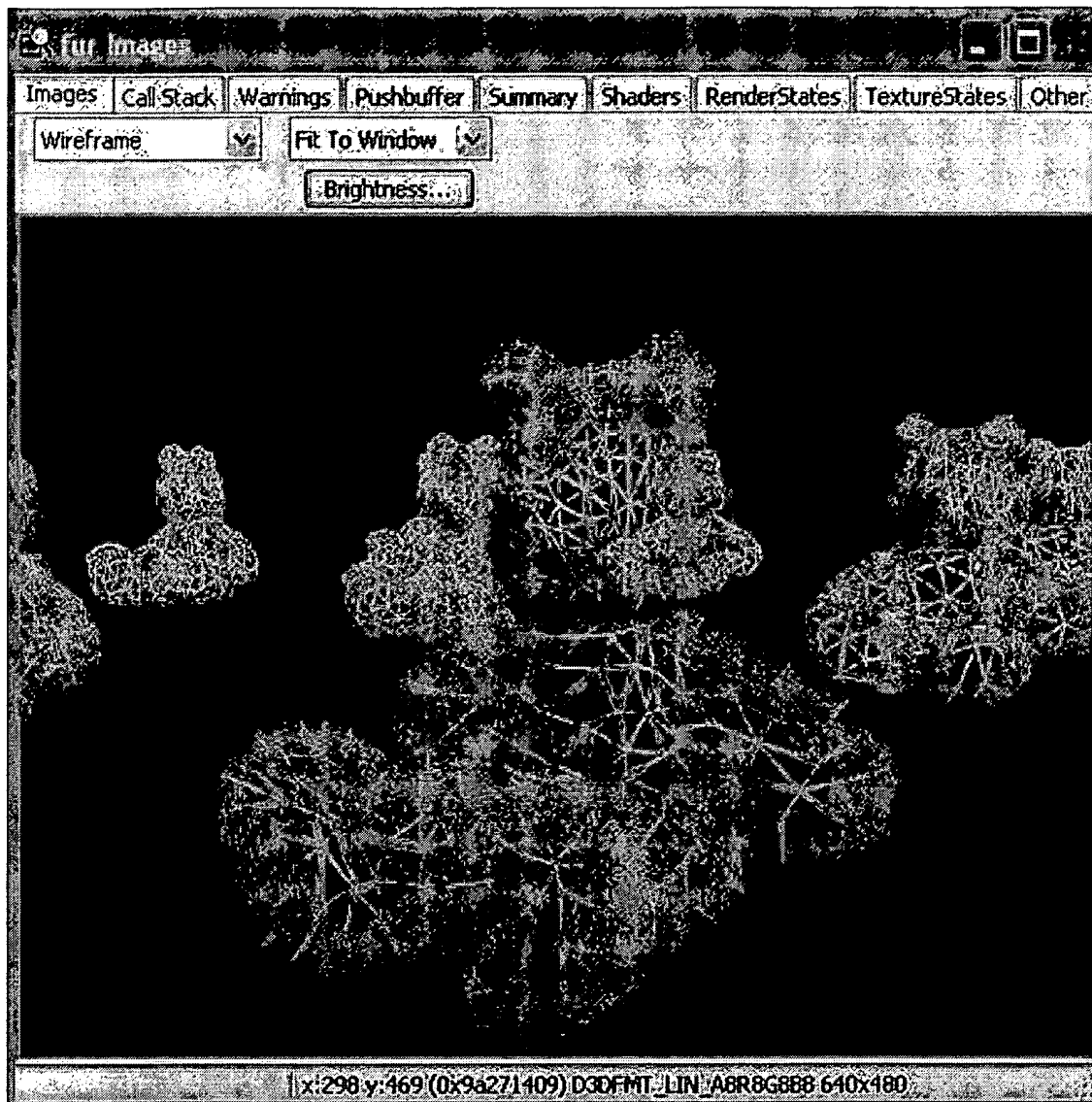


Fig. 12

BEST AVAILABLE COPY

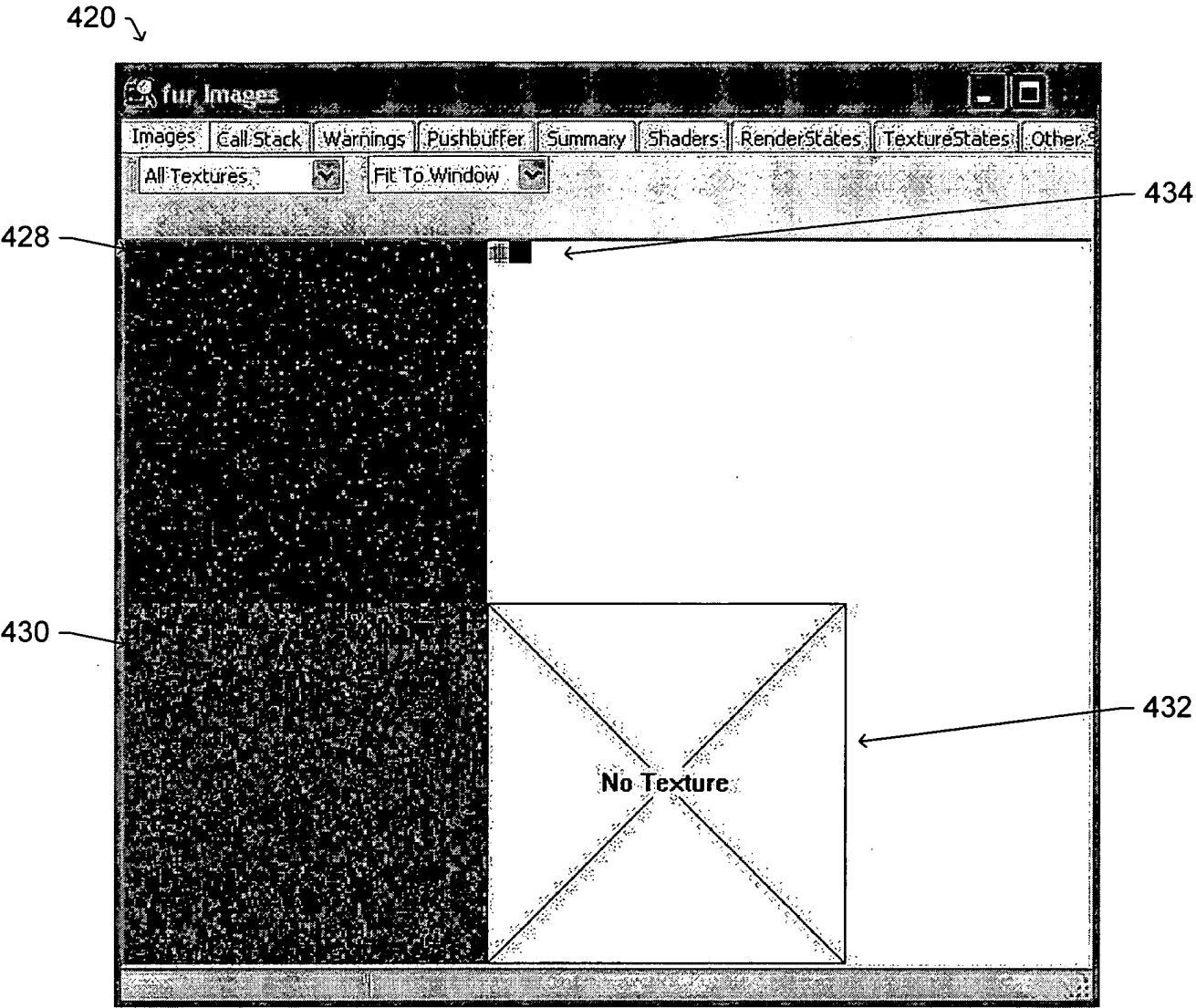


Fig. 13



420 ↘



Fig. 14

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420 ↘

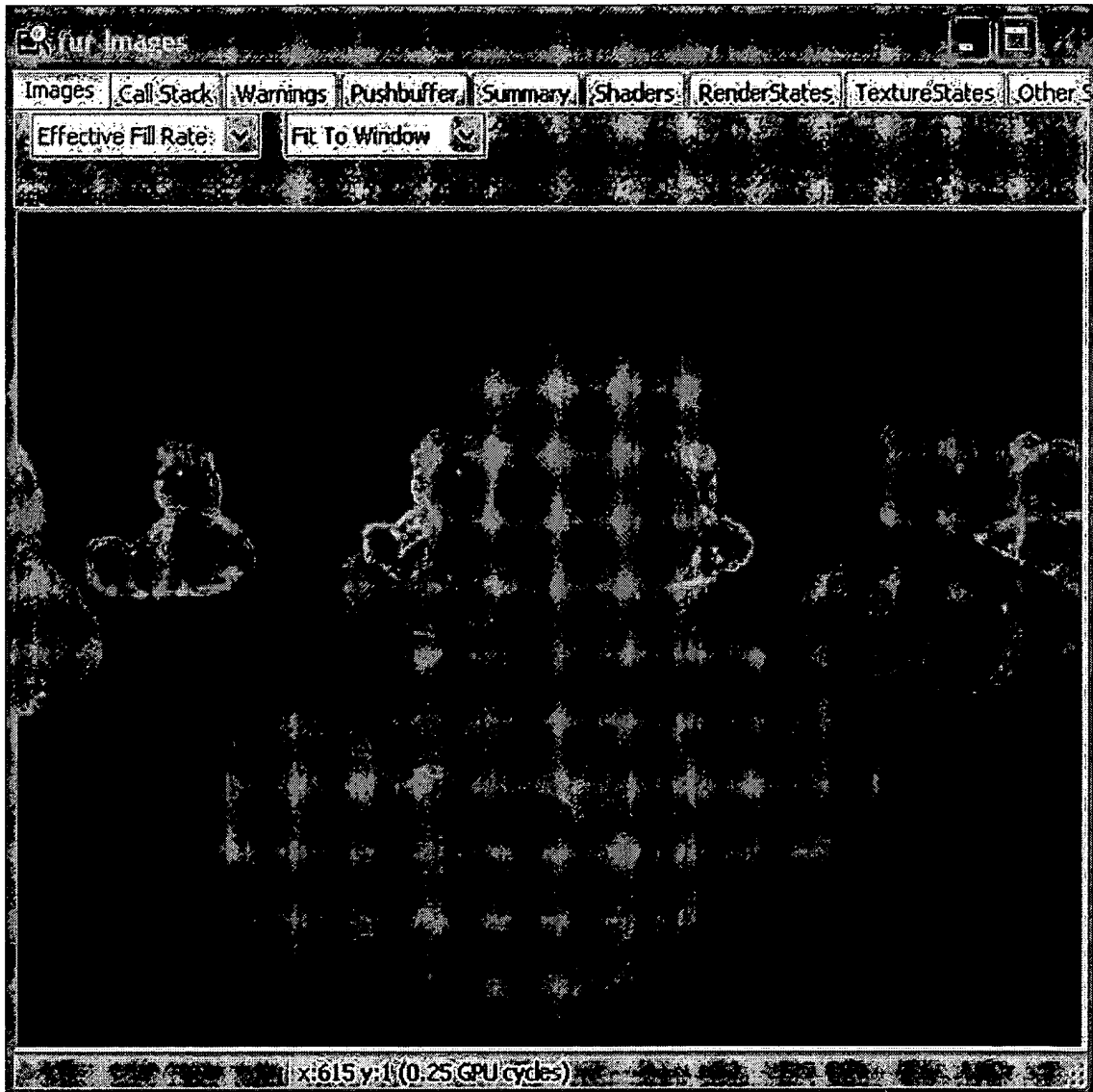


Fig. 15

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450 ↘

452 ↗

Pushbuffer Stack Trace				
Images Call Stack Warnings Pushbuffer Summary Shaders Render States Texture States Other State				
Path to Symbol File: c:\xboxbins\dump <input type="button" value="Browse"/> <input type="button" value="Resolve Symbols"/>				
Event	Symbol	Line	File	
BlockOnObject	D3D::BlockOnTime	537	c:\xbox\private\windows\directx\d3d8\se\pusher.cpp	
	D3D::BlockOnNonSurfaceResource	1287	c:\xbox\private\windows\directx\d3d8\se\pusher.cpp	
	D3DFixup_Reset	1857	c:\xbox\private\windows\directx\d3d8\se\pushres.cpp	
	CXBoxSample::FrameMove	363	c:\xbox\private\atg\samples\graphics\pushbuffer\pushbuffer.cpp	
	CXBoxApplication::Run	294	c:\xbox\private\atg\samples\common\src\xbapp.cpp	
	main	108	c:\xbox\private\atg\samples\graphics\pushbuffer\pushbuffer.cpp	
Clear	mainXapiStartup	54	c:\xbox\private\ntos\xapi\dl\xapi0.c	
	D3DDevice_Clear	74	c:\xbox\private\windows\directx\d3d8\se\clear.cpp	
	CXBoxSample::Render	383	c:\xbox\private\atg\samples\graphics\pushbuffer\pushbuffer.cpp	
	main	108	c:\xbox\private\atg\samples\graphics\pushbuffer\pushbuffer.cpp	
RunPushBuffer	mainXapiStartup	54	c:\xbox\private\ntos\xapi\dl\xapi0.c	
	D3DDevice_RunPushBuffer	122	c:\xbox\private\windows\directx\d3d8\se\pushres.cpp	
	CXBoxSample::Render	386	c:\xbox\private\atg\samples\graphics\pushbuffer\pushbuffer.cpp	
	main	108	c:\xbox\private\atg\samples\graphics\pushbuffer\pushbuffer.cpp	
DrawVerticesUP	mainXapiStartup	54	c:\xbox\private\ntos\xapi\dl\xapi0.c	
	DrawVertices			
	Begin/End			
	D3DDevice_Begin	1196	c:\xbox\private\windows\directx\d3d8\se\drawprim.cpp	
Begin/End	CXFont::Begin	448	c:\xbox\private\atg\samples\common\src\xbfont.cpp	
	CXBoxSample::Render	387	c:\xbox\private\atg\samples\graphics\pushbuffer\pushbuffer.cpp	
	main	108	c:\xbox\private\atg\samples\graphics\pushbuffer\pushbuffer.cpp	
	mainXapiStartup	54	c:\xbox\private\ntos\xapi\dl\xapi0.c	

Fig. 16



460 ↘

462 ↗

fur Warnings			
Images Call Stack Warnings Pushbuffer Summary Shaders RenderStates TextureStates Other State			
<input checked="" type="checkbox"/> Display Priority 1 Warnings <input checked="" type="checkbox"/> Display Priority 2 Warnings <input checked="" type="checkbox"/> Display Priority 3 Warnings			
ID	Event	Priority	Message
3	Clear	3	If all redundant state setting were perfectly eliminated, rendering of entire scene would be 0.
		2	The CPU's floating point precision is set to 53 bits. Consider calling _controlfp_PC_24, _MC
4	Begin/End	3	Vertex shader is writing to 9 output registers that are unused by the current pixel shader.
		3	To make best use of pixel pipelines and swathing, use a single clipped triangle that covers th
74	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
106	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
138	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
173	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
206	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
210	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
243	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
247	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
280	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
282	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
284	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
288	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
321	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
325	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
329	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
333	DrawIndexedVertices	3	Vertex shader is writing to 1 output registers that are unused by the current pixel shader.
336	Begin/End	2	D3DPRESENT_INTERVAL_ONE_OR_IMMEDIATE and D3DPRESENT_INTERVAL_TW

Fig. 17



464 ↘

Pushbuffer Pushbuffer Disassembly			
Images Call Stack Warnings Pushbuffer Summary Shaders Render States Texture States Other State			
Event	Pushbuffer	Size	Attributes
BlockOnObject			
Clear	Clear(D3DCLEAR_TARGET D3DCLEAR_ZBUFFER D3DCLEAR_STENCIL)	28	
RunPushBuffer			
DrawVerticesUP	D3DRS_PSCOMBINERCOUNT	8	Redundant
	D3DRS_PSRGBINPUTS*	36	Redundant
	D3DRS_PSRGBOUTPUTS*	36	Redundant
	D3DRS_PSALPHAINPUTS*	36	Redundant
	D3DRS_PSALPHAOUTPUTS*	36	Redundant
	LazySetShaderStageProgram	8	Redundant
	SetVertexShaderConstant	44	
	SetVertexShader/SelectVertexShader	208	
	LazySetSpecFogCombiner	8	Redundant
	D3DRS_PSFINALCOMBINERINPUTSABCD	8	
	D3DRS_PSFINALCOMBINERINPUTSEFG	4	
	LazySetState/SetVertexShaderInput	100	
	Jump:	4	
	D3DRS_CULLMODE	8	
	D3DRS_ALPHABLENDENABLE	532	
	SetVertexShaderConstant	76	
	SetVertexShader/SelectVertexShader	136	
	CommonSetViewport	52	Redundant
	SetVertexShader/SelectVertexShader	8	Redundant
	D3DRS_PSCOMBINERCOUNT	8	
	D3DRS_PSRGBINPUTS*	36	
	D3DRS_PSRGBOUTPUTS*	36	
	D3DRS_PSALPHAINPUTS*	36	

Fig. 18



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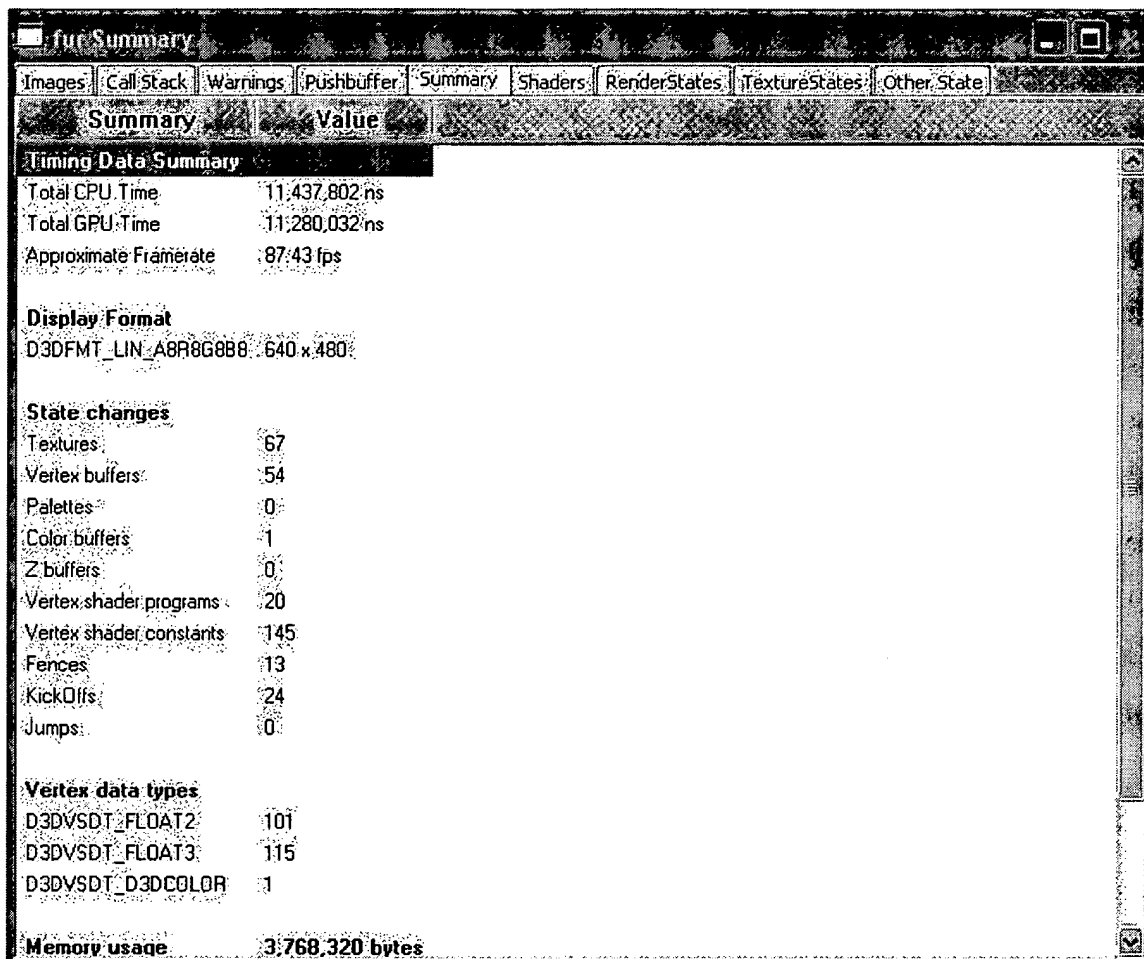


Fig. 19

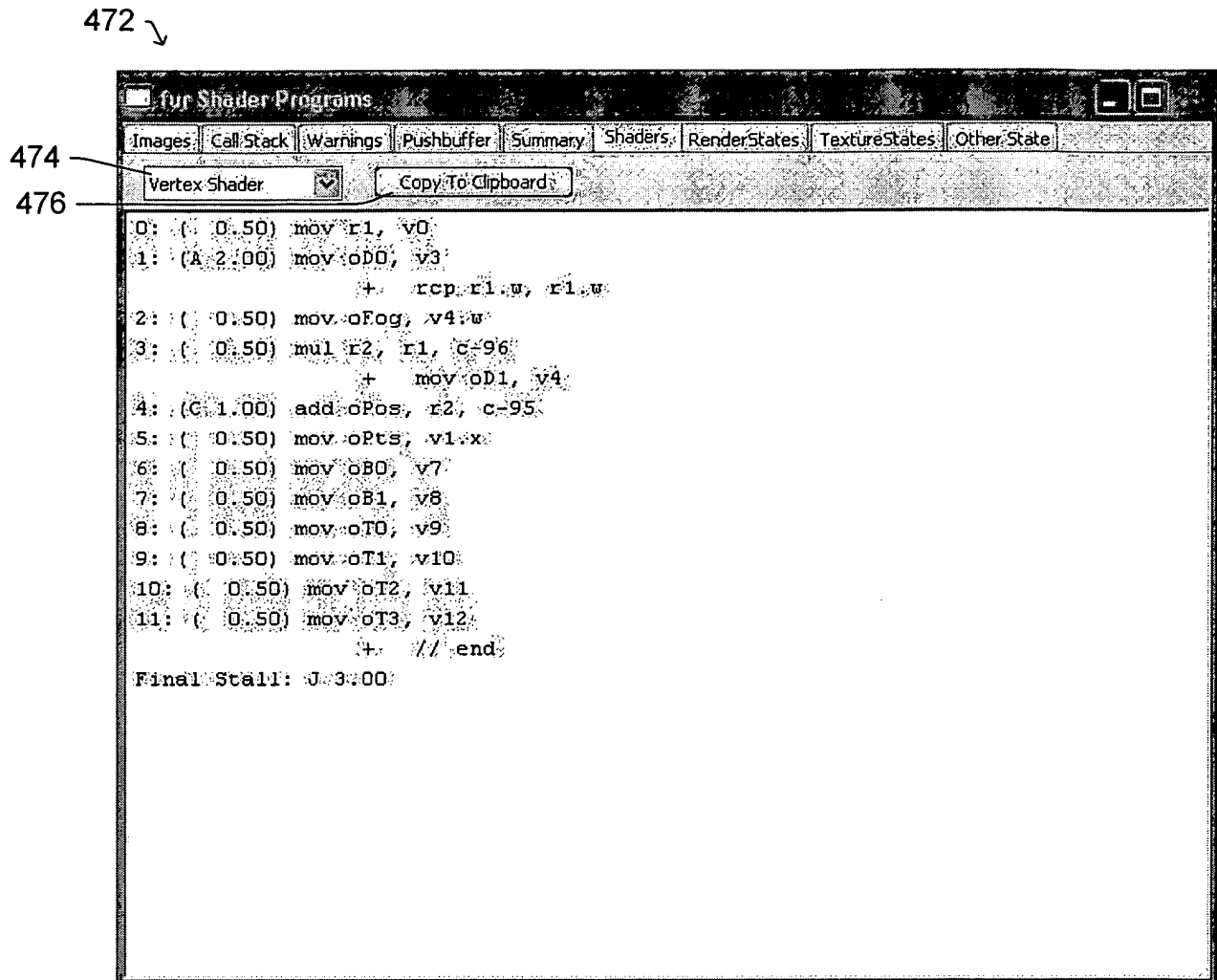


Fig. 20



480 ↘

RenderState	Value
D3DRS_ALPHABLENDENABLE	TRUE
D3DRS_ALPHAFUNC	D3DCMP_GREATEREQUAL
D3DRS_ALPHAREF	0x08
D3DRS_ALPHATESTENABLE	TRUE
D3DRS_BACKFILLMODE	D3DFILL_SOLID
D3DRS_BLENDCOLOR	0x00000000
D3DRS_BLENDOP	D3DBLENDOP_ADD
D3DRS_COLORWRITEENABLE	D3DCOLORWRITEENABLE_ALL
D3DRS_CULLMODE	D3DCULL_CCW
D3DRS_DEPTHCLIPCONTROL	D3DCCC_CULLPRIMITIVE
D3DRS_DESTBLEND	D3DBLEND_INVSRCALPHA
D3DRS_DITHERENABLE	FALSE
D3DRS_DONOTCULLUNCOMPRESSED	FALSE
D3DRS_DXT1NOISEENABLE	FALSE
D3DRS_EDGEANTIALIAS	FALSE
D3DRS_FILLMODE	D3DFILL_SOLID
D3DRS_FOGCOLOR	0x00000000
D3DRS_FOGDENSITY	?
D3DRS_FOGENABLE	FALSE
D3DRS_FOGEND	?
D3DRS_FOGSTART	?
D3DRS_FOGTABLEMODE	D3DFOG_NONE
D3DRS_FRONTFACE	D3DFRONT_CW
D3DRS_LIGHTING	FALSE
D3DRS_LINewidth	1.000
D3DRS_LOCALVIEWER	FALSE

Fig. 21



484 ↘

The screenshot shows a window titled 'Texture States' with a tabbed interface. The 'Texture States' tab is selected. The window contains a table with two columns: 'Texture State' and 'Value'. The table lists properties for 'Texture Unit 0' and 'Texture Unit 1'.

Texture State	Value
Texture Unit 0	
D3DTSS_ADDRESSU	D3DADDRESS_WRAP
D3DTSS_ADDRESSV	D3DADDRESS_WRAP
D3DTSS_ADDRESSW	D3DADDRESS_WRAP
D3DTSS_ALPHAKILL	D3DTALPHAKILL_DISABLE
D3DTSS_BORDERCOLOR	0x00000000
D3DTSS_BUMPENVLOFFSET	-
D3DTSS_BUMPENVLSCALE	-
D3DTSS_BUMPENVMAT00	-
D3DTSS_BUMPENVMAT01	-
D3DTSS_BUMPENVMAT10	-
D3DTSS_BUMPENVMAT11	-
D3DTSS_COLORKEY	0x00000000
D3DTSS_COLORKEYOP	D3DTCOLORKEYOP_DISABLE
D3DTSS_COLORSIGN	0
D3DTSS_MAGFILTER	D3DTEXF_LINEAR
D3DTSS_MAXANISOTROPY	0
D3DTSS_MAXMIPLEVEL	0
D3DTSS_MINFILTER	D3DTEXF_LINEAR
D3DTSS_MIPFILTER	D3DTEXF_LINEAR
D3DTSS_MIPMAPLODBIAS	0.000
D3DTSS_TEXCOORDINDEX	?
D3DTSS_TEXTURETRANSFORMFLAGS	?
Texture Unit 1	
D3DTSS_ADDRESSU	D3DADDRESS_WRAP

Fig. 22



488 ↘

State	Value
Color buffer	640x480, D3DFMT_LIN_A8R8G8B8, address 0x3d04000, pitch 0xa00
Depth buffer	
Color tile	Tile 0, address 0x3d04000, pitch 0xa00, size 0x258000
Depth tile	
Scissors	Inclusive: (0, 0, 640, 480)
Depth clip planes	0.0, 16777215.0
VisibilityTest	FALSE
Texture 0	Texture 128x256, D3DFMT_A4R4G4B4, address 0x3bc8000
Texture 1	
Texture 2	
Texture 3	
Stream v0	D3DVSDT_FLOAT3, address 0x3a9b000, pitch 0x10
Stream v1	
Stream v2	
Stream v3	D3DVSDT_D3DCOLOR, address 0x3a9b00c, pitch 0x10
Stream v4	
Stream v5	
Stream v6	
Stream v7	
Stream v8	
Stream v9	
Stream v10	
Stream v11	
Stream v12	
Stream v13	
Stream v14	

Fig. 23



500 →

GPU Debugger Pixel <350,256>

Close <- Back Copy Text to Clipboard Copy Window Image to Clipboard

Pixel History

All GPU operations affecting pixel <350,256> on the current render target up to and including event 290: Bear Fur 0/12 operations.
The gamma ramp set for the Render Target in the Images Window is used to display colors in this window.

Initial framebuffer values

Initial framebuffer color: 0xff3b2a26
Initial framebuffer depth: 13656823.000000
Initial framebuffer stencil: 0x00

Event 3: Clear

Framebuffer depth after clear: 16777215.000000
Framebuffer stencil after clear: 0x00

Event 4: Begin/End Primitive 0

Pixel shader output color: 0xff353542
Framebuffer color after blend: 0xff353542

Event 6: Bear Mesh 0/DrawIndexedVertices Primitive 1430

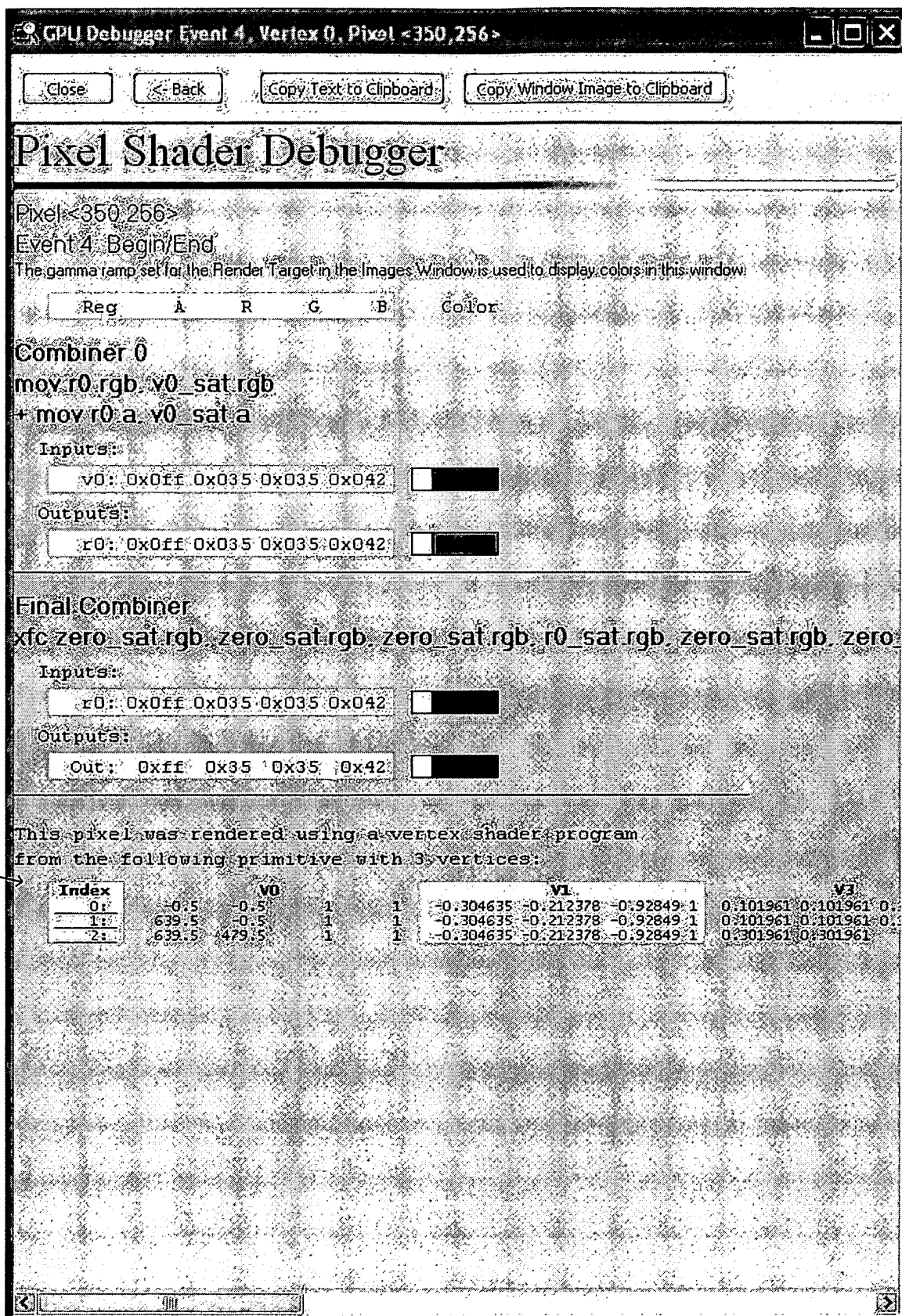
Pixel shader output color: 0xff3b2a26
Pixel shader output depth: 13646101.000000
Framebuffer color after blend: 0xff3b2a26
Framebuffer depth after blend: 13646101.000000
Framebuffer stencil after blend: 0x00

Event 321: Bear Fur 0/DrawShells/DrawIndexedVertices Primitive 1419

Fig.
24



520



522

Fig. 25



540 ↘

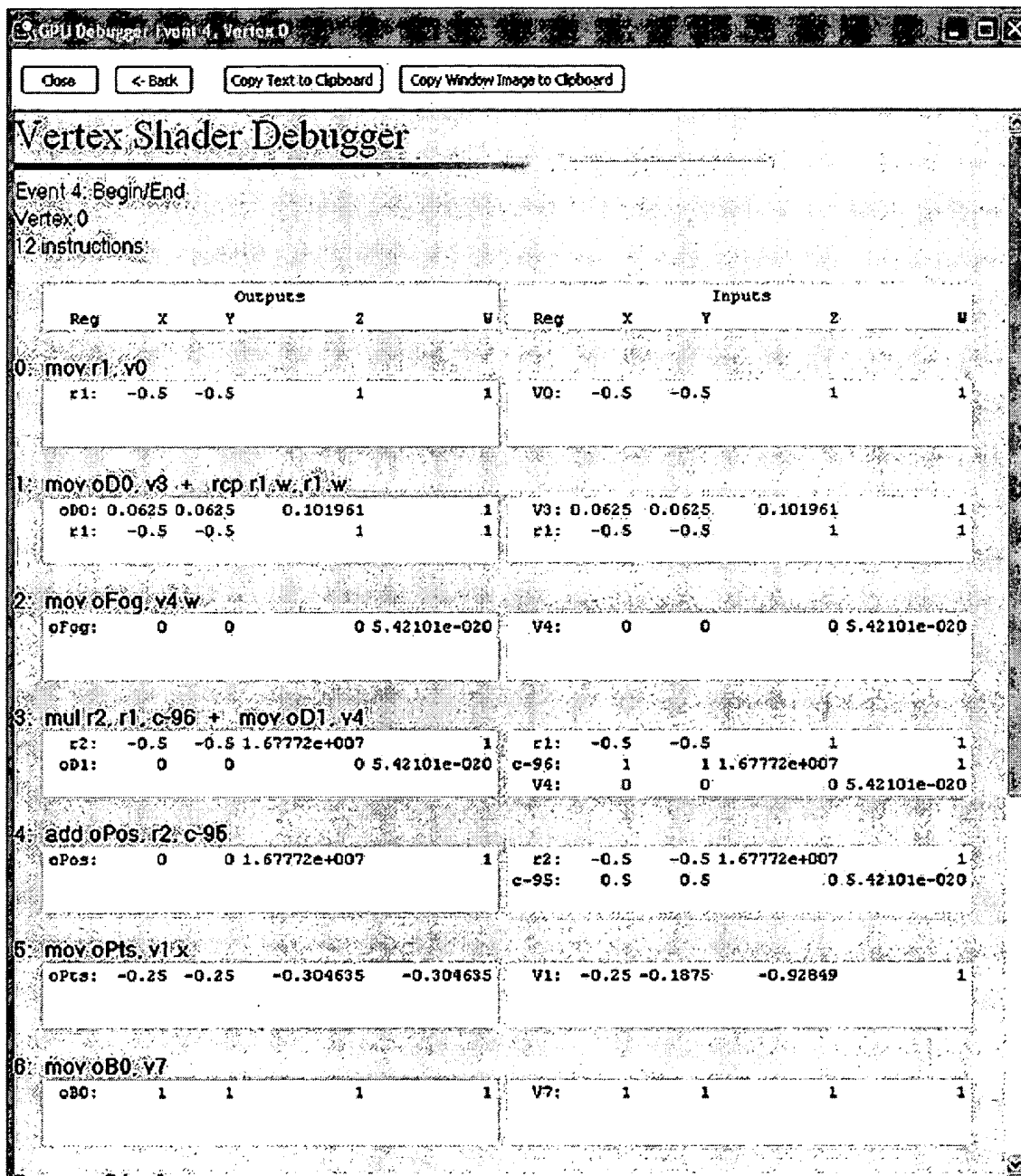


Fig. 26

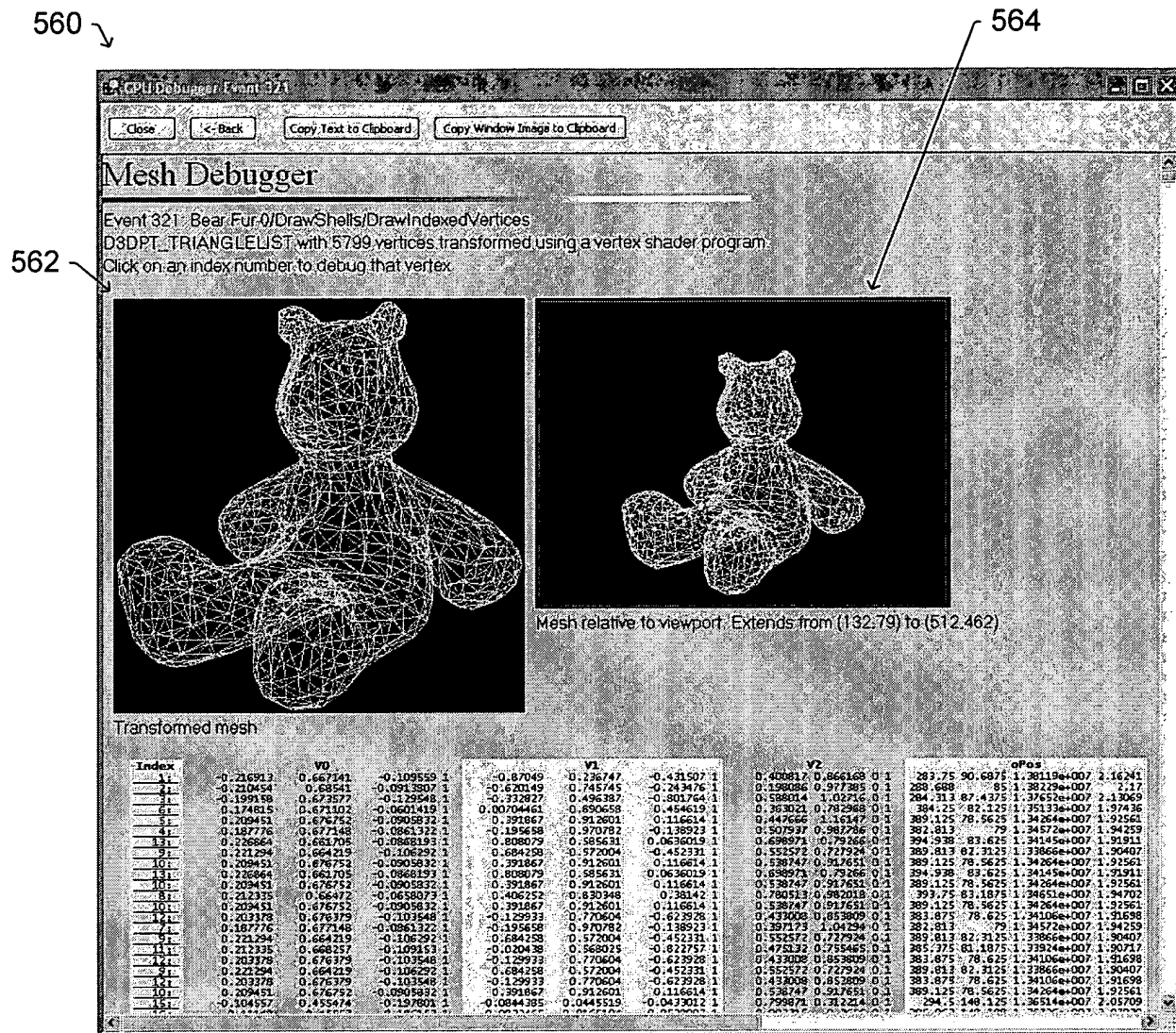


Fig. 27

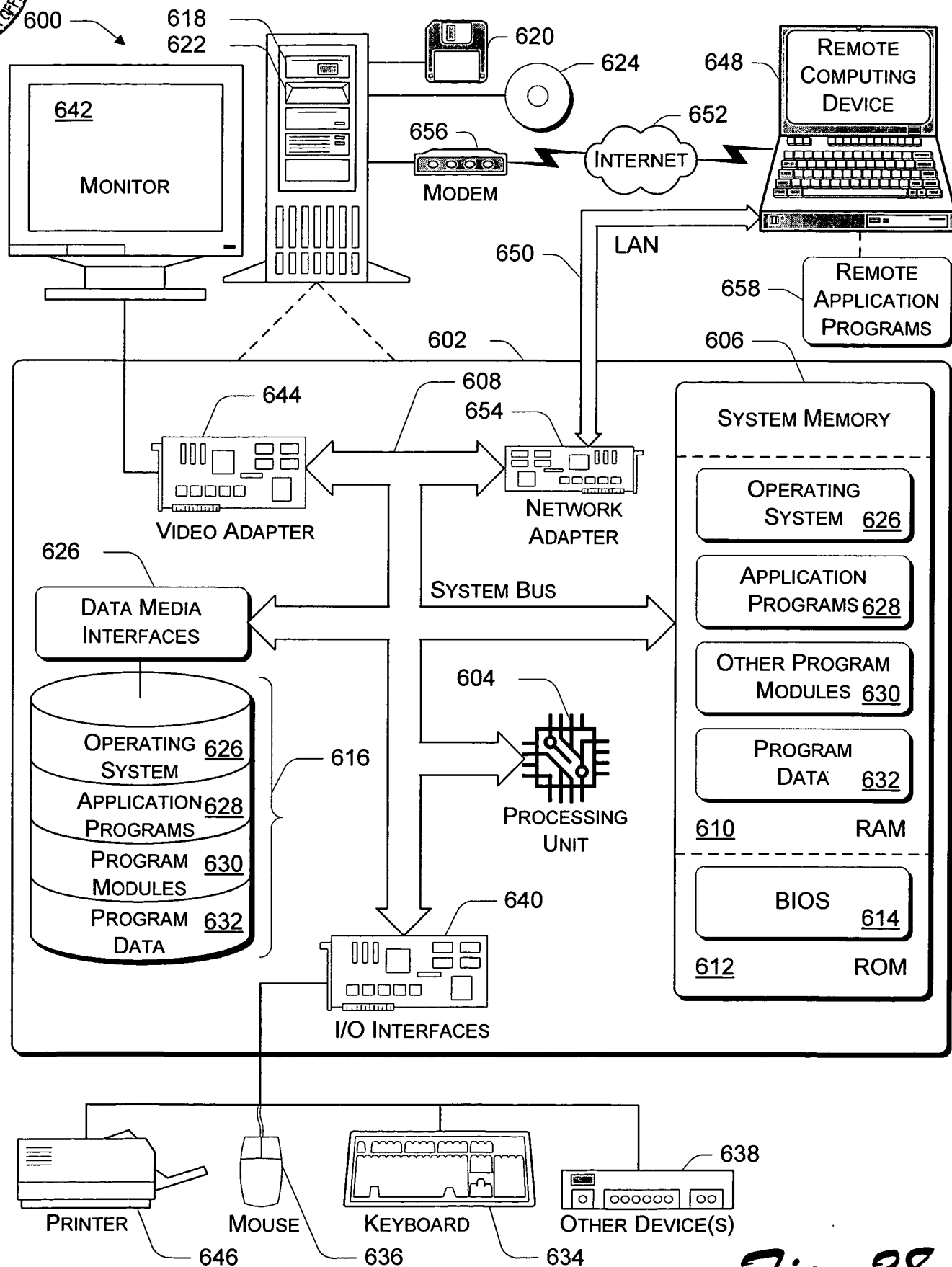


Fig. 28